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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,350	05/04/2007	Ichiro Ootomo	FUJ00682P00700US	8856

7590 03/04/2009  
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EXAMINER
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WILSON, GREGORY A

ART UNIT	PAPER NUMBER
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3749

MAIL DATE	DELIVERY MODE
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03/04/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,350	<b>Applicant(s)</b> OOTOMO ET AL.	
	<b>Examiner</b> Gregory A. Wilson	<b>Art Unit</b> 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 21-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 21-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/19/06 &amp; 10/18/06</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, *the plurality of heating systems each having a burner and a combustion gas passage* must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-9 and 21-23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the term "should" renders the claim indefinite because it assumes that the flow from the secondary heat exchanger into the primary heat exchanger may or may not occur, furthermore the specification does not provide a determination of how the term "should" should be interpreted. For purposes of examination, the Examiner is interpreting the claims as a flow of water from a secondary heat exchanger into a primary heat exchanger.

**Claims 24-35** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 24, the applicant recites that the plurality of heating systems each have a burner and a combustion gas passage for guiding combustion gas generated in the burner, however this suggests that each burner is separated by some sort of partition in

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order to create its own individual combustion gas passage. It is unclear by the specification and the drawings what the applicant regards as the combustion gas passage as the specification discloses them as unitary structures (8, 95, 97, 116, 117).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 2, 4-7, 24, 25, 30, 31, 33 and 35** are rejected under 35 U.S.C. 102(b) as being anticipated by **JP 2002-349968**. **JP 2002-349968** discloses a heating apparatus which includes a burner (1, 21a, 21b), a combustion gas passage (25) for guiding combustion gas generated in the burner, a primary heat exchanger (6) including finned tubes for heating water by heat of the combustion gas and positioned in the combustion gas passage, a secondary heat exchanger (9) for heating water by heat of the combustion gas and positioned in the passage downstream of the primary heat exchanger wherein the primary and secondary heat exchangers are arranged across the flow of combustion gas and connected via tubes (8) and (10) so that water pass from the secondary heat exchanger into the primary heat exchanger (SEE Figure 11) wherein the secondary heat exchanger comprises a number of tubes arranged in parallel (SEE Figure 2). With regards to claim 2, the primary heat exchanger is capable of heating water using sensible heat of the combustion gas and the secondary heat

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exchanger is capable of heating water using mainly latent heat of the combustion gas. With regards to claim 5, the tubes of the secondary heat exchanger are part of a 3D structure wherein the tubes are arranged staggered vertically and horizontally wherein there are more horizontal rows (Figure 2). With regards to claim 24, JP 2002-349968 discloses a plurality of heating systems (SEE Figure 6) each having a burner (21a, 21b, 36) and a combustion gas passage for guiding combustion gas from the burner, a heat exchanging means (23, 24, 39) for heating water by heat exchange with the combustion gas, wherein the heat exchangers extend over at least two of the heating systems, the heat exchanging means includes multiple circuits (23, 24, 39) (two of which thermally contact, ie: 23 & 24) formed in rows along the combustion gas flow direction with all the heat exchangers extending over at least two of the heating systems (SEE Figures 6 & 11).

**Claims 1, 2, and 4-7** are rejected under 35 U.S.C. 102(b) as being anticipated by **JP 2000-346456**. **JP 2000-346456** discloses a heating apparatus and includes a burner (1), a combustion gas passage (unnumbered) for guiding the combustion gas from the burner toward a first primary heat exchanger (3) (which are fin and tube) for heating water by heat of the combustion gas and positioned in the combustion gas passage, a secondary heat exchanger (4) for heating water by heat of the combustion gas and positioned in the passage downstream of the primary heat exchanger wherein the primary and secondary heat exchangers are connected (SEE Figure 4) such that water passes through the second heat exchanger then flows into the primary heat exchanger and the secondary includes a number of heat receiving tubes in parallel to

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each other (SEE Figure 1c), the primary heat exchanger is capable of heating water using sensible heat of the combustion gas and the secondary heat exchanger is capable of heating water using latent heat of the combustion gas. As shown in Figures 1b & 1c the secondary heat exchanger make up a three dimensional structure in which the tubes are arranged vertically and horizontally, wherein the number of tubes arranged vertically are less than the number of tubes arranged horizontally, alternatively the tubes can be arranged as staggered with regards to Figure 2. With regards to claim 6, the secondary tubes are arranged across flow of the combustion gas.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 2002-349968 in view of Dodd (1,894,760)**. **JP 2002-349968** discloses the applicants primary inventive concept as stated above including a heating apparatus having a primary and secondary heat exchanger. **JP 2002-349968** discloses that both sets of heat exchanger tubes are finned, wherein the applicant discloses that the secondary heat exchanger has bare tubes. **Dodd** teaches a water heating apparatus having heat exchanger tubes which are bare. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter

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pertains to have modified the secondary heat exchange tubes of JP 2002-349968 by using bare tubes such as that taught by Dodd for the purpose of providing a more simplified and cost efficient structure without sacrificing too much by way of heat exchange.

**Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 2000-346456 in view of Dodd (1,894,760)**. **JP 2000-346456** discloses the applicants primary inventive concept as stated above including a heating apparatus with a primary heat exchanger and secondary heat exchanger for heating water, however JP 2000-346456 discloses that both sets of heat exchanger tubes are finned, wherein the applicant discloses that the secondary heat exchanger has bare tubes. Dodd teaches a water heating apparatus having heat exchanger tubes which are bare. A person having ordinary skill in the art would have found it obvious to modify the secondary tubes of JP 2000-346456 to include bare tubes instead of finned tubes for such a desire to cut costs without sacrificing too much by way of heat exchange.

***Allowable Subject Matter***

**Claims 8, 9, 21-23, 26-29, 32 and 34** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory A. Wilson/  
Primary Examiner, Art Unit 3749  
February 28, 2009